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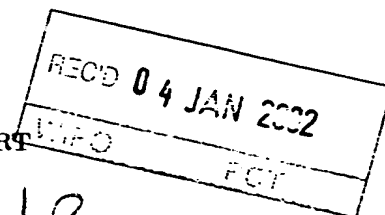
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## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)



12

Applicant's or agent's file reference 102031-200	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/25866	International filing date (day/month/year) 21 SEPTEMBER 2000	Priority date (day/month/year) 21 SEPTEMBER 1999
International Patent Classification (IPC) or national classification and IPC IPC(7): F42B 5/00 and US Cl.: 102/530		
Applicant OLIN CORPORATION		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This **REPORT** consists of a total of 5 sheets.
- ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 18 APRIL 2001	Date of completion of this report 22 OCTOBER 2001
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer HAROLD TUDOR
Facsimile No. (703) 305-3230	Telephone No. (703) 306-4172

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/25866

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

☐ the international application as originally filed☒ the description:

pages \_\_\_\_\_ (See Attached) \_\_\_\_\_, as originally filed

pages \_\_\_\_\_, filed with the demand

pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

☒ the claims:

pages \_\_\_\_\_ (See Attached) \_\_\_\_\_, as originally filed

pages \_\_\_\_\_, as amended (together with any statement) under Article 19

pages \_\_\_\_\_, filed with the demand

pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

☒ the drawings:

pages \_\_\_\_\_ (See Attached) \_\_\_\_\_, as originally filed

pages \_\_\_\_\_, filed with the demand

pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

☒ the sequence listing part of the description:

pages \_\_\_\_\_ (See Attached) \_\_\_\_\_, as originally filed

pages \_\_\_\_\_, filed with the demand

pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).☐ the language of publication of the international application (under Rule 48.3(b)).☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:☐ contained in the international application in printed form.☐ filed together with the international application in computer readable form.☐ furnished subsequently to this Authority in written form.☐ furnished subsequently to this Authority in computer readable form.☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. ☒ The amendments have resulted in the cancellation of:☒ the description, pages \_\_\_\_\_ NONE \_\_\_\_\_☒ the claims, Nos. \_\_\_\_\_ NONE \_\_\_\_\_☒ the drawings, sheets/fig. \_\_\_\_\_ NONE \_\_\_\_\_5. ☐ This report has been drawn as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\*Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. statement**

Novelty (N)	Claims	<u>1-13, 15-29, 32 and 33</u>	YES
	Claims	<u>14, 30, 31</u>	NO
Inventive Step (IS)	Claims	<u>15, 16, 18, 19</u>	YES
	Claims	<u>1-14, 17, 20-33</u>	NO
Industrial Applicability (IA)	Claims	<u>1-33</u>	YES
	Claims	<u>NONE</u>	NO

**2. citations and explanations (Rule 70.7)**

Claims 14, 30 and 31 lack novelty under PCT Article 33(2) as being clearly anticipated by Johnsen. Note Figs. 5, 7-9 and 12. Fig. 12 discloses a cartridge comprising a metal casing 126 and a cover 124.

Claims 1, 2, 8, 11, 17, 21-29 lack an inventive step under PCT Article 33(3) as being obvious over Johnsen in view of Guignet. Johnsen discloses the ammunition and the method of use of the ammunition substantially as claimed. However, Johnsen does not disclose a case formed of a zinc-based alloy. Guignet teaches that it is old and well known in the art to form a case for an ammunition of a zinc-based alloy. To form the Johnsen case of a zinc-based alloy, as taught by Guignet as being an art recognized equivalent material for forming a cartridge case, would have been obvious to one having ordinary skill in the art at the time the invention was made. It would have been an obvious design choice to one having ordinary skill in the art at the time the invention was made to vary the dimensions of ammunition and to employ either a chargeless case prior to insertion of the first round or prior to insertion of the first round, inserting a preliminary round into the chamber, but not causing ignition of the charge of the preliminary round.

Claims 3-6 lack an inventive step under PCT Article 33(3) as being obvious over Johnsen in view of Guignet and British Patent 3,891. Johnsen and Guignet are applied as above. However, Johnsen and Guignet do not disclose a plurality of grooves on the exterior surface of the case. The British patent teaches, in Fig. 4, using a plurality of grooves on the exterior surface of an ammunition case to reduce heat transfer between a gun barrel and the case. To employ a plurality of grooves on the exterior surface of the ammunition case formed by the combination of Johnsen and Guignet to reduce heat transfer, as taught by the British patent, would have been obvious to one having ordinary skill in the art at the time the invention was made. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the number and size of the grooves to achieve a desired result.

Claim 20 lacks an inventive step under PCT Article 33(3) as being obvious over Johnsen in view of British Patent 3,891. (Continued on Supplemental Sheet.)

**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

**I. BASIS OF REPORT:**

This report has been drawn on the basis of the description,  
page(s) 1-17, as originally filed.  
page(s) NONE, filed with the demand.  
and additional amendments:  
NONE

This report has been drawn on the basis of the claims,  
page(s) 18, as originally filed.  
page(s) NONE, as amended under Article 19.  
page(s) NONE, filed with the demand.  
and additional amendments:  
Page(s) 19-23, filed with the letter of 30 August 2001.

This report has been drawn on the basis of the drawings,  
page(s) 1-6, as originally filed.  
page(s) NONE, filed with the demand.  
and additional amendments:  
NONE

This report has been drawn on the basis of the sequence listing part of the description:  
page(s) NONE, as originally filed.  
pages(s) NONE, filed with the demand.  
and additional amendments:  
NONE

**V. 2. REASONED STATEMENTS - CITATIONS AND EXPLANATIONS (Continued):**

References are applied as above. To employ a plurality of grooves on the exterior surface of the Johnsen ammunition case to reduce heat transfer, as taught by the British patent, would have been obvious to one having ordinary skill in the art at the time the invention was made. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the number and size of the grooves to achieve a desired result.

Claims 32 and 33 lack an inventive step under PCT Article 33(3) as being obvious over Johnsen in view of Dippold et al. Johnsen is applied as above. However, Johnsen does not disclose using the projectile to remove clinkers from a kiln or remove a plug from a furnace. Dippold et al teach that it is old and well known in the art to fire a projectile to remove clinkers from a kiln or remove a plug from a furnace. To employ the Johnsen device to remove clinkers from a kiln or a plug from a furnace, as taught by Dippold et al, would have been obvious to one having ordinary skill in the art at the time the invention was made.

Claims 1, 2, 8 and 9 lack an inventive step under PCT Article 33(3) as being obvious over Clas in view of Guignet. Clas discloses the ammunition substantially as claimed. However, Clas does not disclose a case formed of zinc-based alloy. Guignet teaches that it is old and well known in the art to form a cartridge case of a zinc-based alloy. To form the Clas case of a zinc-based alloy, as taught by Guignet as being an art recognized equivalent material for forming a cartridge case, would have been obvious to one having ordinary skill in the art at the time the invention was made.

Claims 3-6 lack an inventive step under PCT Article 33(3) as being obvious over Clas in view of Guignet and British Patent 3,891. References are applied as above. To employ a plurality of grooves on the exterior surface of the ammunition case formed by the combination of Clas and Guignet to reduce heat transfer, as taught by the British patent, would have been obvious to one having ordinary skill in the art at the time the invention was made.

Claims 1, 2 and 8-13 lack an inventive step under PCT Article 33(3) as being obvious over Ballreich et al in view of Guignet. Ballreich et al disclose the invention substantially as claimed. However, Ballreich et al do not disclose a case formed of a zinc-based alloy. Guignet is applied as above. To form the Ballreich et al case of a zinc-based alloy, as taught by Guignet as being an art recognized equivalent material for forming a cartridge case, would have been obvious to one having ordinary skill in the art at the time the invention was made. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the characteristics of the ammunition, and to use a #209 primer to achieve a desired result.

Claims 3-7 lack an inventive step under PCT Article 33(3) as being obvious over Ballreich et al in view of Guignet and British Patent 3,891. References are applied as above. To employ a plurality of grooves on the exterior surface of the ammunition case formed by the combination of Ballreich et al and Guignet to reduce heat transfer, as taught by the British

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

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**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 11

patent, would have been obvious to one having ordinary skill in the art at the time the invention was made. It would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the number and size of the grooves to achieve a desired result.

Claims 15, 16, 18 and 19 meet the criteria of PCT Article 33(2-4) because the combination of a discharging apparatus and an ammunition comprising a metallic case having a length and diameter effective to be initially accommodated within the chamber of the discharging device and then, after firing to be driven forward into the barrel and discharged therefrom by such firing of a subsequent similar ammunition, wherein the ammunition comprises a case having a central longitudinal channel extending forward from a primer pocket portion at a base to a fore portion proximate a mouth;

a primer is mounted within the primer pocket;

a volume containing a propellant is at least partially defined by the central longitudinal channel and the cover interior surface;

a cover has a cover length; and

the case has a case length, less than the cover length, the cover interior surface has a circumferential recess forward of the case and effective to locally weaken the cover sufficiently to permit internal pressure within the cover to sever a portion ahead of the recess from a portion behind the recess while the portion behind remains attached to the case when the ammunition is fired, is not disclosed nor fairly taught by the prior art.

----- NEW CITATIONS -----

NONE

7. The ammunition of claim 4 wherein the case exterior surface has circumferential extractor groove (50; 350) having a depth of at least 1mm and separated by no more than 2mm from an aft extremity of the case.

5 8. The ammunition of claim 1 further comprising a primer (28; 328).

9. The ammunition of claim 8 wherein the primer comprises a metallic cup mounted in the case base.

10. The ammunition of claim 9 wherein:  
10 the primer is a #209 primer; and  
the case has a mass of between 70g and 100g and 65mm, and a maximum diameter of between 20mm and 26mm.

11. The ammunition of claim 1 wherein the member (324) is a cap extending from a rear  
15 rim (369) to a front end (378) and having a rear portion encircling a fore portion of the case.

12. The ammunition of claim 11 wherein:  
the cap (324) is formed of a resinous polymer;  
the case fore portion includes a flange (366) having an external flange diameter;  
20 the cap rear portion includes an inwardly directed part (368) aft of the flange (366) and having an internal diameter less than the flange diameter so as to cooperate with the flange to resist forward translation of the cap relative to the flange; and  
a cap length is between 100% and 300% of a case length.

13. The ammunition of claim 12 wherein:  
there is a first radial clearance of at least 1.0 mm between the flange (366) and the cap  
(324); and  
there is a second radial clearance of between interference fit and 0.5 mm between the  
cap inwardly directed part (368) and a neck portion (364) of the case aft of the flange (366).

30

14. Ammunition (320) for use with a discharging apparatus that includes a chamber for receiving the ammunition, a muzzle and a barrel between the chamber and the muzzle, the ammunition extending from a rear end to a front end and comprising:

a metallic case (322) that extends aft-to-fore from a base (336) at the ammunition rear end to a mouth (332) and has interior and exterior surfaces;

a cover (324) formed of polymeric resin and extending from a rear rim to a front end at the ammunition front end and having a mass not in excess of a mass of the case and having interior (372) and exterior surfaces (376); and

a propellant charge (326).

15. The ammunition of claim 14 wherein:

the case has a central longitudinal channel extending forward from a primer pocket portion at the base to a fore portion proximate the mouth;

a primer is mounted within the primer pocket; and

the propellant charge is confined within a volume at least partially defined by the central longitudinal channel and the cover interior surface.

16. The ammunition of claim 14 wherein:

the cover has a cover length; and

the case has a case length, less than the cover length.

17. The ammunition of claim 14 wherein:

the cover consists essentially of injection molded high density polyethylene; and

the case consists essentially of die cast zinc or zinc alloy.

18. The ammunition of claim 14 wherein the cover interior surface (372) has a circumferential recess (374) forward of the case and effective to locally weaken the cover sufficiently to permit internal pressure within the cover to sever a portion (375A) ahead of the recess from a portion (375B) behind the recess while the portion behind remains attached to the case when the ammunition is fired.

19. The ammunition of claim 18 wherein the circumferential recess:

has a longitudinal extent of between 1mm and 5mm; and



locally thins the cover to a minimum thickness of between 0.6mm and 1.4mm from an adjacent thickness of between 1.6mm and 2.6mm.

20. The ammunition of claim 14 wherein:

5 the case has a mass of between 70g and 100g, a length of between 30mm and 40mm, and a maximum diameter of between 20mm and 26mm;

the case exterior surface has a plurality of circumferential grooves (388), said grooves occupying a total of at least about 25% of a length of the case.

10 21. The ammunition of claim 14 wherein:

the case consists essentially of zinc or a zinc-based alloy

22. A method for operating an industrial ballistic tool to discharge a plurality of ammunition rounds, each having a case and a charge of propellant comprising:

- 15 (a) providing a plurality of such ammunition rounds each comprising a zinc case;  
(b) inserting a first such ammunition round into a chamber of the tool;  
(c) causing ignition of the charge of the first ammunition round;  
(d) inserting a second such ammunition round into the chamber; and  
(e) causing ignition of the charge of the second ammunition round so as to expel the  
20 spent case of the first ammunition round out of a muzzle of the tool at a muzzle kinetic energy.

23. The method of claim 22 further comprising:

repeating steps (d) through (e), each time utilizing a new ammunition round to expel the case of the previously-discharged round.

25

24. The method of claim 22 further comprising:

prior to insertion of the first round, inserting a chargeless case into the chamber so that the insertion of the first round advances the chargeless case toward the muzzle.

30 25. The method of claim 22 further comprising:

prior to insertion of the first round, inserting a preliminary round into the chamber, but not causing ignition of the charge of the preliminary round, so that the insertion of the first round advances the preliminary round toward the muzzle.

26. The method of claim 22 further comprising:

prior to insertion of the first round, inserting a preliminary round into the chamber and causing ignition of the charge of the preliminary round, so that the insertion of the first round advances the spent case of the preliminary round toward the muzzle.

27. The method of claim 22 wherein:

the muzzle kinetic energy is at least 10kJ.

28. The method of claim 22 wherein step (d) comprises engaging an aft end of the spent case of the first ammunition round with a fore end of the second such ammunition round so as to advance the spent case toward the muzzle.

29. The method of claim 22 wherein step (e) comprises:

permitting a first portion of a non-metallic cover portion of the second ammunition round to separate from a remaining second portion and travel behind the spent case of the first ammunition round; and

permitting the remaining second portion to seal against the chamber to resist combustion gas leakage around the case of the second round.

30. A method for operating an industrial ballistic tool to discharge a plurality of ammunition rounds, each having a case and a charge of propellant comprising:

(a) providing a plurality of ammunition rounds;

(b) inserting a first such ammunition round into a chamber of the tool;

(c) causing ignition of the charge of the first ammunition round;

(d) inserting a second such ammunition round into the chamber, so as to advance the spent case of the first ammunition round toward a muzzle of the tool; and

(e) causing ignition of the charge of the second ammunition round so as to expel the spent case of the first ammunition round out of the muzzle.

31. The method of claim 30 further comprising:

repeating steps (d) through (e), each time utilizing a new ammunition round to expel the case of the previously-discharged round.

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
29 March 2001 (29.03.2001)

PCT

(10) International Publication Number  
**WO 01/22026 A3**

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60/155,052 21 September 1999 (21.09.1999) US

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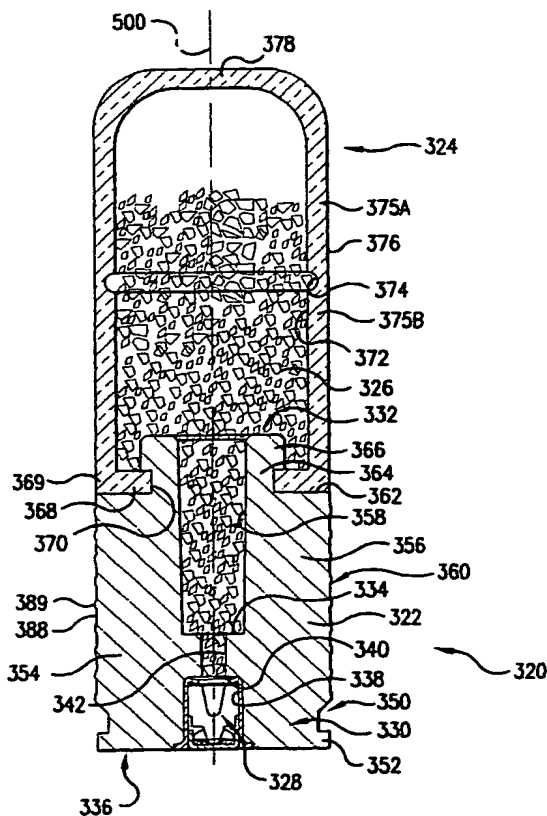
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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

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[Continued on next page]

(54) Title: **INDUSTRIAL AMMUNITION**



(57) Abstract: A projectileless ammunition system (20; 320) includes a metallic case (22; 322). A propellant charge (26; 326) is carried by the case and covered by an over-powder member (24; 324) in the absence of a separate projectile. The ammunition is advantageously used with an industrial ballistic tool operating so that each spent case serves as the effective projectile to be propelled by firing of the next round of ammunition.

WO 01/22026 A3



NL, PT, SE). OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

**(88) Date of publication of the international search report:**  
8 November 2001

**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/25866

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : F42B 5/00

US CL : 102/530

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 102/293,430,432,439,444-447,464,467-470, 529, 530,531

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

East; Zinc cartridge case, Kilngun, Industrial gun

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 3,621,781 A (JOHNSEN) 23 November 1971 (23/11/71), Figs 5,7,8,9 and 12, line 33 of col. 4 through line 40 of col. 9.	14,30-31 ----- 1-6,8,11,17 20-21
Y	US 1,974,270 A (GUIGNET) 18 September 1934 (18/09/34), see entire document.	1-13,17, 21- 29
Y	GB 3,891 A (BARKER ET AL) 14 January 1915 (14/01/15), Fig 4, lines 41-43.	3-6,8,9,11, 20
Y	US 3,230,884 A (CLAS) 25 January 1966 (25/01/66), see entire document.	1-6,8,9

☒ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*E* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*G* document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

28 NOVEMBER 2000

Date of mailing of the international search report

19 APR 2001

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## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/25866

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4,809,612 A (BALLREICH ET AL) 07 March 1989 (07/03/89), Figs 1 and 2, line 19-36 of col. 3.	1-21
Y	US 3,146,712 A (MAURER ET AL) 01 September 1964 (01/09/64), see the figure and line 65 of col. 2 through line 24 of col. 3.	18,19
A	US 3,103,883 A (ORMANNS ET AL) 17 September 1963 (17/09/63).	
A	US 3,604,355 A (GREENLEES) 14 September 1971 (14/09/71).	
A	US 3,818,834 A (BAUMGARTENER) 25 June 1974 (25/06/74).	
A	US 4,593,622 A (FIBRANZ) 10 June 1986 (10/06/86).	
A	US 5,824,944 A (DIPPOLD ET AL) 20 October 1998, (20/10/98).	

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/25866

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Group I, claims 1-21, drawn to a blank ammunition, classified in class 102, subclass 530.  
Group II claims 22-31, a method for discharging a plurality of ammunition rounds, classified in class 102, subclass 430.

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest



The additional search fees were accompanied by the applicant's protest.



No protest accompanied the payment of additional search fees.

# PATENT COOPERATION TREATY

From the INTERNATIONAL BUREAU

**PCT**

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

To:

Commissioner  
US Department of Commerce  
United States Patent and Trademark  
Office, PCT  
2011 South Clark Place Room  
CP2/5C24  
Arlington, VA 22202  
ETATS-UNIS D'AMERIQUE  
in its capacity as elected Office

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Applicant

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1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
18 April 2001 (18.04.01)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO  
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